AMENDMENTS TO THE CLAIMS

Please amend claims 1-6 as follows:

Listing of claims:

1. (Currently Amended) A control system for controlling ~~the~~ compressed air applied to one or more spray nozzles used in a flue gas cooling system wherein the one or more nozzles are of the type that operate to receive pressurized liquid and pressurized air and to provide an atomized liquid oriented at the flue gas to thereby cool the same, comprising:

a liquid supply line coupled with the one or more spray nozzles including a flow meter disposed therein for sensing a flow rate of liquid supplied to the one or more spray nozzles;

a compressed air supply line including an air flow valve disposed to adjust the amount of compressed air supplied to the one or more spray nozzles; and

a spray controller coupled with the flow meter and the air flow valve, the controller operable in accordance with an algorithm based on flue gas flow and temperature characteristics at various operating conditions to provide a control signal to the air flow valve to adjust the amount of compressed air being supplied to the one or more nozzles as a function of sensed liquid flow rate;

an adjustable liquid flow valve disposed in the liquid spray supply line disposed to receive a control signal from the controller to adjust the amount of liquid supplied to the one or more spray nozzles; and

a temperature sensor located in proximate relation to the flue gases and disposed to provide a temperature sensing signal to the controller,

wherein the spray controller having means for calculating, in response to receipt of the temperature sensing signal, ~~determines~~ a desired valve position for the liquid flow valve as ~~based on a measured temperature indicated by the temperature sensing signal and a set point temperature~~,

$$m = K_p.(e + \frac{1}{K_i}.\int e dt + K_d.\frac{de}{dt})$$

with m being the desired valve position of the liquid flow valve, e being a difference between a

measured temperature indicated by the temperature sensing signal and a set-point temperature, and Kp, Ki and Kd being proportional, integral and differential factors, respectively, and supplying a control signal to the liquid flow valve to adjust the liquid flow valve to the desired valve position to cause a change in a liquid flow rate through the liquid flow valve ~~when a difference exists between the measured temperature and the set-point temperature~~.

2. (Currently Amended) The invention of claim 1,

wherein ~~the desired valve position is calculated as:~~

$$~~m = K_p.(e + \frac{1}{K_i}.\int e dt + K_d.\frac{de}{dt})~~ ;$$

~~with m being the desired valve position of the liquid flow valve, e being the difference between the measured temperature and set-point temperature, and Kp, Ki and Kd being proportional, integral and differential factors, respectively~~ the controller includes means for calculating a desired air pressure based on a sensed liquid flow rate through the liquid flow valve and a table specifying a relationship between liquid flow rate and air pressure for the one or more spray nozzles.

3. (Currently Amended) The invention as in claim 1 wherein the controller includes means for providing ~~provides~~ a signal to the liquid flow valve to increase the liquid flow supplied to the one or more nozzles when an increase in temperature is sensed.

4. (Currently Amended) The invention as in claim 3 wherein the controller includes means for providing ~~provides~~ a signal to the liquid flow valve to decrease the liquid flow supplied to the one or more nozzles when a decrease in temperature is sensed.

5. (Currently Amended) A method for controlling the amount of compressed air applied to one or more spray nozzles of the type used in various operable modes of a flue gas cooling system in the cooling of flue gas~~es~~ generated by the system and that is operative to receive

pressurized liquid and pressurized air and to supply an atomized liquid spray, comprising the steps of:

detecting a measured temperature of the flue gas;

calculating ~~determining~~ a desired valve position for a liquid flow valve supplying liquid to the one or more spray nozzles ~~based on the measured temperature and a set-point temperature for the flue gas~~ as:

$$m = K_p.(e + \frac{1}{K_i}.\int e dt + K_d.\frac{de}{dt})$$

with m being the desired valve position of the liquid flow valve, e being a difference between the measured temperature and a set-point temperature, and Kp, Ki and Kd being proportional, integral and differential factors, respectively;

adjusting the liquid flow valve to the desired valve position to cause a change in a liquid flow rate through the liquid flow valve ~~when a difference exists between the measured temperature and the set-point temperature~~;

monitoring an actual liquid flow rate being applied to the one or more spray nozzles; and

adjusting the compressed air supply as a function of the applied liquid flow rate.

6. (Currently Amended) The invention as in claim 5,

wherein ~~the desired valve position is calculated as a function of a difference between the measured temperature and the set-point temperature~~
the step of adjusting the compressed air supply includes calculating a desired air pressure based on the applied liquid flow rate and a table specifying a relationship between liquid flow rate and air pressure for the one or more spray nozzles, and adjusting the compressed air supply to achieve the desired air pressure.